SCIENCE & EDUCATION Impact

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Research Eases Food Fears

Food scientists help restore confidence in some of our favorite foods.

Dinner out or at home should be a relaxing experience. Drinking fresh-squeezed apple cider and eating oysters on the half shell, eggs sunny side up or hamburgers medium rare are all simple pleasures of life that suddenly seem to be risky business.

Land-Grant food scientists and extension educators are helping food producers bring safer food to the market and helping consumers relax.

Payoff

- **The chicken AND the egg.** Though cases of *salmonella* food poisoning from eggs are rare, research by **Purdue**, **North Carolina State** and **Texas A&M** may make it nearly nonexistent. **Purdue's** low temperature, pasteurization process kills *salmonella* on the egg shells without cooking the eggs. This process could increase the value of Indiana's egg industry by $40 million. Killing pathogens with ultraviolet light is another way to reduce the risk of egg shell contamination being tried at these universities. **Texas A&M** researchers have also reduced the incidence of salmonella in chickens by 75 percent by boosting young chicks' immune systems in a method similar to disease vaccines in humans.

- **Beefing up food safety.** Researchers at **Idaho** are finding that minute changes in cattle diets can reduce the amount of *E. coli* excreted, thus reducing the risk of its being transferred to the food supply at the time cattle go to packing houses. **Iowa State** researchers found simply reducing the stickiness of the carcass surface with a lubricating spray could reduce the chance of picking up contamination in the processing plant. **Iowa State** is also using fluorescent spectroscopy to help inspectors more accurately identify contamination. **Michigan State** scientists developed a litmus paper type of test to determine if meat and poultry have been cooked long enough to kill bacteria, including *E. coli*. **South Dakota State** and **Kansas State** research has found that irradiation helped control *E. coli* without affecting the quality of the meat.

RESEARCH, EXTENSION AND EDUCATION AT WORK

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- **Brown knows. Kansas State** scientists found that just because a burger looks brown, it may not be safe. Premature browning is related to pigment in the raw meat. This finding helped change food safety guidelines to rely on temperature rather than color to determine if ground beef is cooked properly.

- **Safety on the half shell. Louisiana State** researchers developed a method to pasteurize fresh oysters so people can still eat them raw without fear of a naturally occurring bacterium that was linked to 69 deaths between 1992 and 1996.

- **Rescued fresh cider sales.** Sales were down 40 percent in some states because of widespread fear of foodborne illness. Apple cider task forces were established in **New Hampshire** and **Illinois**. In **New Hampshire** educators helped 25 producers responsible for a million gallons of fresh cider do a better job of pasteurizing their cider and managing their orchards. When faced with the same concern, **Cornell** and **Virginia Tech** developed ultraviolet light irradiation methods that were inexpensive and did not alter the taste of cider. **Ohio State** and **Tennessee** have had success with flash pasteurization without changing the taste of the cider.

- **Fresher, safer salads and OJ. Ohio State** researchers discovered a way to make water work better. Adding ozone to water boosted its cleaning power and acted as an anti-microbial agent. This may prove an inexpensive way to help salads-in-a-bag last longer and make restaurant salad bars safer. **Ohio State** food scientists also found a way to use low voltage electricity to kill bacteria and extend the shelf life of fresh-squeezed orange juice to up to six months with no change in taste or quality.

- **Fresh fish fillets. Mississippi State** researchers found that natural organic acids can extend the refrigerated shelf life of catfish fillets by six days and help control the spread of the foodborne pathogen *Listeria monocytogenes.*

- **Saving time and lives.** Though most of the media attention has focused on foodborne illness, food allergies still affect 5 percent of children and 1percent to 2 percent of adults. **Nebraska** food scientists found a quick, accurate way to detect minute amounts of eggs or peanuts—two of the most common allergens—in mixed food products. This is important because labels often don't list trace amounts of these foods. **Purdue's** quick detection quality sensor is saving a California tomato processor up to $300,000 annually by reducing waste and labor costs using computer rather than manual methods.

Cooperative State Research, Education, and Extension Service
United States Department of Agriculture

Cooperative State Research, Education, and Extension Service in cooperation with the Extension Committee on Organization andPolicy, the Experiment Station Committee on Organization and Policy, the Academic Programs Committee on Organization and Policy, the International Programs Committee on Organization and Policy, and the Louisiana State University Agricultural Center.

April 1999